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Empirical researchers frequently use output distance functions to analyze multiple-output technologies with primal stochastic frontier approaches. There exist two predominant approaches for Translog output distance functions: the first - more classical – approach normalizes the output vector either with one of the outputs or with the Euclidean norm of the output vector (e.g. Kumbhakar and Lovell, 2000), while the other approach, the Stochastic Ray Production Frontier (Löthgren, 2000), uses a vector of polar coordinates as a measure of output combinations for the Euclidean distance of the output vector. Compared to the classical output distance function, the Stochastic Ray function is able to handle cases, where some output quantities of some firms are zero. This makes it an interesting alternative in cases where some firms do not produce all outputs that are included in the model. So far, the performance of both approaches has only been tested with real world data (Whiteman, 1999; Fousekis, 2002; Zhang and Garvey, 2008). Although the estimates diverted considerably between the classical and the Stochastic Ray Production Frontier approach, it is still unclear how well the Stochastic Ray Production Frontier performs compared to the classical approach. Therefore, I apply a Monte Carlo simulation to test the performance of the two approaches. As the different functional settings of the two approaches make a direct assessment of the parameters futile, I follow Coelli and Perelman (2000) and compare the performance of the efficiency estimates and the scale elasticity. First results indicate that the new Stochastic Ray Production Frontier approach is as good as the classical approach.

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